

REMARKS

Claim Objections

Claim 1 stands objected to because of the recitation in line 6 of "translucent member" whereas said member was previously amended in line 2 to be "transparent". Appropriate correction has been required and has been made in the above amendment of claim 1.

Claim 13 stands objected to because the word "special" in claim 13 appears to be a typographical error and was intended to be --spatial--. Appropriate correction has been required and made in the above amendment to claim 13.

Claims 12, 14, 16 and 17 stand objected to because of the change in dependency in the prior amendment, the Examiner noting that the change in dependency leads to antecedent basis problems with respect to the claimed striations in claims 12, 16 and 17. Appropriate amendments have been made to revert to the original dependency. With respect to claim 14, however, there appears to be no antecedent basis problem with respect to its dependency from claim 7 as recited in the prior amendment.

Claim Rejections - 35 USC §102

Claims 1 and 6-9 stand rejected under 35 USC §102(b) as anticipated by Graham (WO 02/103658).

With respect to claim 1, Graham is cited as disclosing an illumination device 10 comprising an elongate transparent member 16 of material having substantially total internal reflection of light, an LED 30, light source 15 located at least at one edge of the transparent member to pass light into and along the member by primary diffusion of the light (see the Abstract) and a second elongate member 32 arranged in superimposed relationship with the elongate transparent member 16 thus to define a gas space 38 therebetween; characterized in that the transparent member 16 is adapted to function as a leaky wave guide allowing light to escape into the gas space for secondary diffusion therein, and in that the

second elongate member is of a translucent and not a transparent material, thus being adapted to diffuse and be illuminated by the secondarily diffused light (reference made to pages 4-10 and Fig. 2).

Regarding claim 6, Graham is cited as disclosing the LED light sources 30 as separately disposed at opposite ends of the elongate transparent member.

Regarding claim 7, Graham discloses a reflector 44 disposed on a part of the surface 20 of the elongate transparent member 16.

Regarding claim 8, the Examiner finds Graham to disclose a reflector/reflective property disposed on a part of the surface of the second elongate member, facing the elongate transparent member, as understood from the recitation on page 5, paragraph 3 of Graham that "part of the inner surface [facing plate 16] of the cover [32] may be reflective".

Regarding claim 9, Graham is cited as teaching the first elongate member is of an acrylic material as recited on page 7, paragraph 2.

The foregoing rejections are respectfully traversed and reconsideration is requested in view of the amendment to claim 1 and the comments which follow.

Claim 1 has been amended to specifically recite that "the width of the gas space is about 2mm". There is basis for this amendment in the specification, on page 4 in the last line of the third full paragraph.

Graham, contrary to the presently recited width of the gas space, teaches a gap of not less than 30mm (page 5, fourth paragraph). Indeed, the depth is optimally 300mm (page 8, first line). Therefore, amended claim 1 is clearly not anticipated by Graham and dependent claims 6-9 are likewise novel.

Claim Rejections - 35 USC §103

Claims 2, 4, 14 and 15 stand rejected under 35 USC §103(a) as unpatentable over Graham in view of Hulse et al (US 6,550,952). In addition to the teachings of Graham

discussed above, the Examiner finds with respect to claims 2 and 4 that Graham further teaches the translucent member 16 may be arcuate in shape (page 4, paragraph 7). Graham fails to teach the transparent being a rod of circular cross section and the second member being a tube surrounding the rod and defining the gas space therein. However, Hulse is cited as disclosing an illumination device comprising a first elongate member (wave guide 10), an LED light source 16 located at least at one end of the first member to pass light into and along the member, a second member 14 arranged in superimposed relationship with the first translucent member, thus to define a gas space therebetween; wherein the first member 10 is a rod, circular in cross section, and the second member 14 is a tube surrounding the rod, and defining the gas space therebetween (reference being made to Figs. 1-3 and column 4, line 44 through column 5, line 48). The Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify the shapes of the components of Graham, as suggested therein with respect to modification of the shape of plate 16 and cover 14 into the configuration taught by Hulse to create the transparent member 16 of Graham as a round rod and cover 14 of Graham as a tube analogous to the edge lit rod 10 and tube 14 of Hulse in order to illuminate a message configured in an elongate manner or repeated to be viewed from multiple angles. It has been held that the mere change in shape of components disclosed in the prior art is within the ordinary skill of a worker in the art.

Claims 2, 4, 14 and 15 are dependent on claim 1 and are allowable therewith. The Examiner maintains that it "would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the shapes of the components of Graham . . . into the configuration taught by Hulse". However, this is, it is respectfully submitted, incorrect and cannot be accepted. Hulse suggests imparting the message on the rod, whereas if the tube is translucent but not transparent, this will merely obscure the message. If the message is placed on the translucent tube, while this is indeed precisely what the present invention suggests, this is not suggested in either Hulse or Graham. Hulse suggests putting

the message on the rod and using a transparent tube; Graham suggests that a gap of at least 30mm is needed in order to obtain sufficient diffusion of light in order to provide the requisite uniformity of illumination to evenly display a message. Accordingly, it cannot be obvious to combine the teachings of Hulse and Graham as suggested by the Examiner.

The Examiner maintains that it "has been held that the mere change in shape of components disclosed in the prior art is within the ordinary skill of a worker in the art". However, closing the gap defined in Graham which Graham teaches must be at least 30mm, and is optimally 300mm to about 2mm is more than a mere change of shape. Rather it is a change of mode of operation. As opposed to giving distance to allow for diffusion of the light, the present invention suggests capturing the light immediately after its exit from the first member. Accordingly, it is not a mere change of shape.

Claim 3 stands rejected under 35 USC §103(a) as unpatentable over Graham in view of Hulse and Levinson et al (US 6,299,338). The teachings of Graham are as discussed by the Examiner above. However, Graham fails to teach the first member 18 having an undulating surface. Hulse discloses an illumination device for illumination of message comprising a first elongate member (wave guide 10), an LED light source 16 located at least at one end of the first member to pass light into and along the member, a second member 14 arranged in superimposed relationship with the first translucent member thus to define a gas space therebetween; wherein the first member 10 is a rod, circular in cross section, and the second member 14 is a tube surrounding the rod, and defining the gas space therebetween (see Figs. 1-3, and column 4, line 44, through column 5, line 48). Levinson teaches a decorative lighting apparatus 400 with translucent member 430 and light emitting diodes 410 disposed on the edge of the translucent member. Fig. 1 shows the transmissive body 130 having an undulating surface. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify the shapes of the components of Graham as suggested therein with respect to modification of the shape of plate 16 and cover 14 into the

configuration taught by Hulse to create the transparent member 16 of Graham as a round rod and cover 14 as a tube analogous to the edge lit rod 10 and tube 14 of Hulse in order to illuminate a message configured as in an elongate manner or repeated to be viewed from multiple angles. Further, the Examiner finds it would have been obvious to additionally modify Graham in view of Hulse by curving the rod shape to first member 16 of Graham, modified by Hulse as shown by Levinson in order to provide a wider variety of patterns and shapes to increase the decorative nature of the signage device of Graham.

This rejection is respectfully traversed. Claim 3 is dependent on claim 1 which is allowable for the reasons discussed above. Levinson adds nothing to the teaching or suggestion of the combination of Graham and Hulse and, accordingly, claim 3 is unobvious.

Claim 10 stands rejected under 35 USC §103(a) as unpatentable over Graham. The Examiner refers to the teachings of Graham discussed above and adds that, although Graham fails to explicitly teach the second translucent member 14 being made from acrylic or polycarbonate, it would have been obvious to one skilled in the art to select acrylic or polycarbonate as the material of the second member since the first member is already made from such materials, and it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Claim 10 depends from claim 1 and is believed to be allowable therewith as unobvious. Furthermore, the selection of suitable materials adds nothing to the disclosure or suggestion of the combination of Graham and Hulse.

Claims 11 and 16 stand rejected under 35 USC §103(a) as unpatentable over Graham, modified by Hulse as applied to claim 2 in view of Oyama (US 5,233,679).

The Examiner refers to the teachings of Graham modified by Hulse as discussed above and adds that Hulse further teaches grooves 26 on a holographic film applied to the first member to allow the light to be emitted from the first member 10. Graham modified by Hulse fails to teach the use of striations. However, Oyama teaches a

translucent member 10 which is illuminated by a light source 20 through the end 28 of the fiber. The fiber 10 further includes striations 16 formed on the light radiating surface of the first member to cause light entering the edge of the body to be emitted out of the body through the radiating surface (reference being made to Fig. 1 and column 4, line 17, through column 5, line 16). The Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify the first member 16 of Graham modified by Hulse to include striations as taught with respect to the fiber 10 of Oyama in order to provide a uniform diffuse light out of the first member and through the second member 14 of Graham at an arc larger than provided by the reflector 44 of Graham. Regarding claim 16, Oyama is cited as further teaching a plurality of striations cut in the surface of the first translucent member; the V-shaped striations thus created extend at least substantially throughout the length of the first member and are spaced apart around at least a part of the extent of the surface of the first member. Although Graham modified by Hulse and Oyama fails to explicitly suggest the depth and width of the striations, the Examiner finds that it would have been obvious to one skilled in the art to cut the grooves between .5 and 1mm in size to optimize the diffusion of light emitting effects for the translucent first member, since it has been held that where the general conditions of claim are disclosed in the prior art, discovering the optimum range involves only routine skill in the art.

The foregoing rejections are also respectfully traversed. Oyama adds nothing to enhance the combination of Graham and Hulse and claims 11 and 16 are believed to be allowable along with amended claim 1 from which they depend.

Claim 12 stands rejected under 35 USC §103(a) as unpatentable over Graham, modified by Hulse and Oyama as applied to claim 11 and further in view of Yamamoto (US 6,601,984). The Examiner refers to the teachings of Graham modified by Hulse and Oyama as discussed above, indicating that the combination fails to teach increasing the striation in the central portion of the first member away from the ends. However, the Examiner that

Yamamoto teaches a translucent member 1 with at least one LED 2 disposed on each end of the member 1, and grooves 11 formed in the first member for diffracting light out of the member. Yamamoto teaches increasing the striation (including the density of grooves by moving them closer together) in the central region of the light member 1 further from the LEDs at the edges of the member. Reference is made to Figs. 1 and 2 and to the statement in column 4, line 66, through column 5, line 62 wherein it is stated "It is desirable to set a wider interval between grooves 11 on the ends of the light-guiding member 1, that is, near the LEDs 2, and to gradually narrow the intervals going away from the LEDs 2". The Examiner concludes that it would have been obvious to one skilled in the art to increase the striation of the first member 16 of Graham modified by Hulse and Oyama in the central portion of the member, away from the light sources in order to, "achieve a uniform illumination along the entire length of the light-guiding member 1", as suggested by Yamamoto.

This rejection is respectfully traversed. Claim 12 is believed to be allowable along with amended claim 1 and claim 11 from which it directly depends. Yamamoto adds neither teaching nor suggestion to the combination of Graham and Hulse over which claim 1 has been indicated to be unobvious and patentable.

Claim 13 stands rejected under 35 USC §103(a) as unpatentable over Graham modified by Hulse as applied to claim 2 and in further view of Strack (US 3,901,674). The Examiner refers to the prior discussion of the teachings of Graham modified by Hulse, but finds that the combination fails to teach spacers between first member 10 and second member 14. However, Strack is cited as teaching optical fiber 16 with a first member, rod 18, a second member, tube 20, surrounding the first member and forming an air gap 26, wherein support means 24 are provided in the gas space to maintain a predetermined spatial relationship between the first and second members. Reference is specifically made to Fig. 2, and columns 2 and 3. The Examiner concludes that it would have been obvious to one skilled in the art to add the spacers 24 of Strack between the members 14 and 16 of Graham

modified by Hulse in order to maintain the first member 16 centered in the tube member 14 as suggested by Strack as the purpose of the spacers such that the gap remains constant and subsequent lighting effects uniform.

This rejection is also respectfully traversed. Strack discloses a clad optic fiber whose purpose is to transmit light from one end to the other with minimum loss. There is no teaching or suggest that the external surface of an optic fiber may provide an illumination device as required by claim 1 from which claim 13 depends. The combination of Hulse and Graham is discussed above, and nothing in the added teachings of Strack detracts from the allowability of claim 1 from which claim 13 depends.

Claim 17 stand rejected as unpatentable over Graham modified by Hulse, Oyama and Yamamoto as applied to claim 12 above and further in view of Kuo (US 2004/0075994). The Examiner refers to the teachings of Graham modified by Hulse, Oyama and Yamamoto discussed above and further that the combination teaches using striation which increases away from the light source. However, the combination fails to suggest doing so with additional striations occupying less than the overall length of the first member as claimed. However, Kuo is cited for teaching a first translucent member, light guide 2, having striations, veins 30, disposed on the surface therefore to facilitate light incident on the light guide 2 view light source 1 disposed at the end thereof being emitted from the light guide 2 out of the emission face thereof. As shown in Fig. 7, the density of the veins 31 increases with distance from the light source, thereby maintaining uniform emission, in a manner similar to that suggested by Yamamoto. Further, the increase in density/number of veins at the far side of the light guide is provided by angling the veins such that they meet at a central distance position and some of the veins do no originate at the incident face of the light guide, thereby occupying less than the overall length of the light guide as claimed (reference being made to Figs. 7 and 8 and paragraphs 19-25). The Examiner concludes that it would have been obvious to one skilled in the art to modify the striations of Graham

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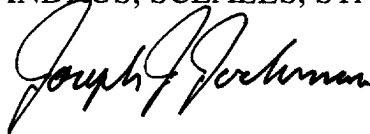
modified by Hulse, Oyama and Yamamoto to include striations that do not run the full length of the translucent member 10 as shown in Kuo as just one of a number of striation patterns known in the art to refract more light out of a light guide at a position further from the light source in order to maintain a uniform light emission pattern.

This rejection is also respectfully traversed. As previously submitted by applicant, claim 1 is unobvious and allowable over the combination of Graham and Hulse, and claim 17 is therefore allowable by virtue of its dependency therefrom. Kuo merely adds to a collection of largely disparate references and adds nothing to the combination of Hulse and Graham to suggest anything adversely affecting the unobviousness of claim 17.

Claims 1-4 and 6-17, as amended herein, are believed to be in condition for allowance and further favorable action is respectfully requested.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Joseph J. Jochman", written in a cursive style.

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